

**PRELIMINARY Basis of Design  
Report**

☐ ACCEPTED

☒ ACCEPTED AS NOTED

☐ REVISE AND RESUBMIT



Disclaimer: If accepted; the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.

For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY Idillon

DATE 8/12/2021

# SEWER BASIS OF DESIGN REPORT FOR PIMA MCDOWELL SHOWROOM

Scottsdale, Arizona

23 July 2021

PREPARED FOR

Aline Architecture Concepts  
7340 East Main Street, #210  
Scottsdale, Arizona 85251

DEVELOPER

Tom Frenkel  
7340 East Main Street, #200  
Scottsdale, Arizona 85251

SITE ADDRESS

8705 East McDowell Road  
Scottsdale, Arizona 85257

Comply with stipulations and address comments below within the subsequent DR case final basis of design report:

- 1) The current site plan herein indicates a separate parcel to be created on the northeast corner of the existing parcel. No details have been provided on this development. Within the final BOD provide details and show how this parcel will be provided with sewer service. Confirm that adequate slope is available to route sewer from this new parcel to the public sewer south of the parent parcel.
- 2) Stipulation: A 6-inch minimum sewer service for any new commercial parcel must be extended to the south and connect directly to the public sewer on Willetta. A private easement through the a clear area or drive aisle on the larger parcel should be provided to maintain this service line. 7-1.409, A & C
- 3) The existing sewer service for the site shall be confirmed to be 6-inch minimum in size and per MAG 440-3. DS&PM 7-1.409, B
- 4) A detailed sewer utility plan needed to be provided within the final BOD. DS&PM 7-1.201

PREPARED BY



4450 north 12<sup>th</sup> street, #228  
phoenix, arizona 85014  
CYPRESS # 21.120



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## **INTRODUCTION: PROJECT DESCRIPTION AND LOCATION**

The Project is known as 'Pima McDowell Showroom' and is located at 8705 East McDowell Road in Scottsdale, Arizona. The proposed project consists of the renovation of the existing onsite buildings and addition of a new warehouse and storage yard.

The utility provider for sewer facilities is the City of Scottsdale.

## **EXISTING CONDITIONS**

Per available utility maps and as-built records, an existing 8" PVC sewer 15,000 square feet, and has an existing 6" service lateral connecting to said main in Willetta Road. Refer to Appendix A for City of Scottsdale Sewer Quarter Section Map.

## **PROPOSED CONDITIONS**

The existing 15,000 SF building is intended to be redeveloped by the new user as showroom with the addition of a new 20,000 SF warehouse and 4,000 SF storage yard. The design team intends to retain the existing sewer service connection for the redeveloped building. The sewer service is anticipated to provide adequate sizing to service the redeveloped Project. Refer to Appendix B for Preliminary Site Plan.

## **REQUIRED COMPUTATIONS**

### **EXISTING SEWER DEMAND:**

**Average Day Demand (Commercial/Retail):**  $0.5 \text{ GPD/SF} \times 15,000 \text{ SF} = 7,500 \text{ GPD}$

**Peak Demand(Commercial/Retail):**  $3 \times 7,500 = 22,500 \text{ GPD}$

### **PROPOSED SEWER DEMAND:**

**Average Day Demand (Commercial/Retail):**  $0.5 \text{ GPD/SF} \times 39,000 \text{ SF} = 19,500 \text{ GPD}$

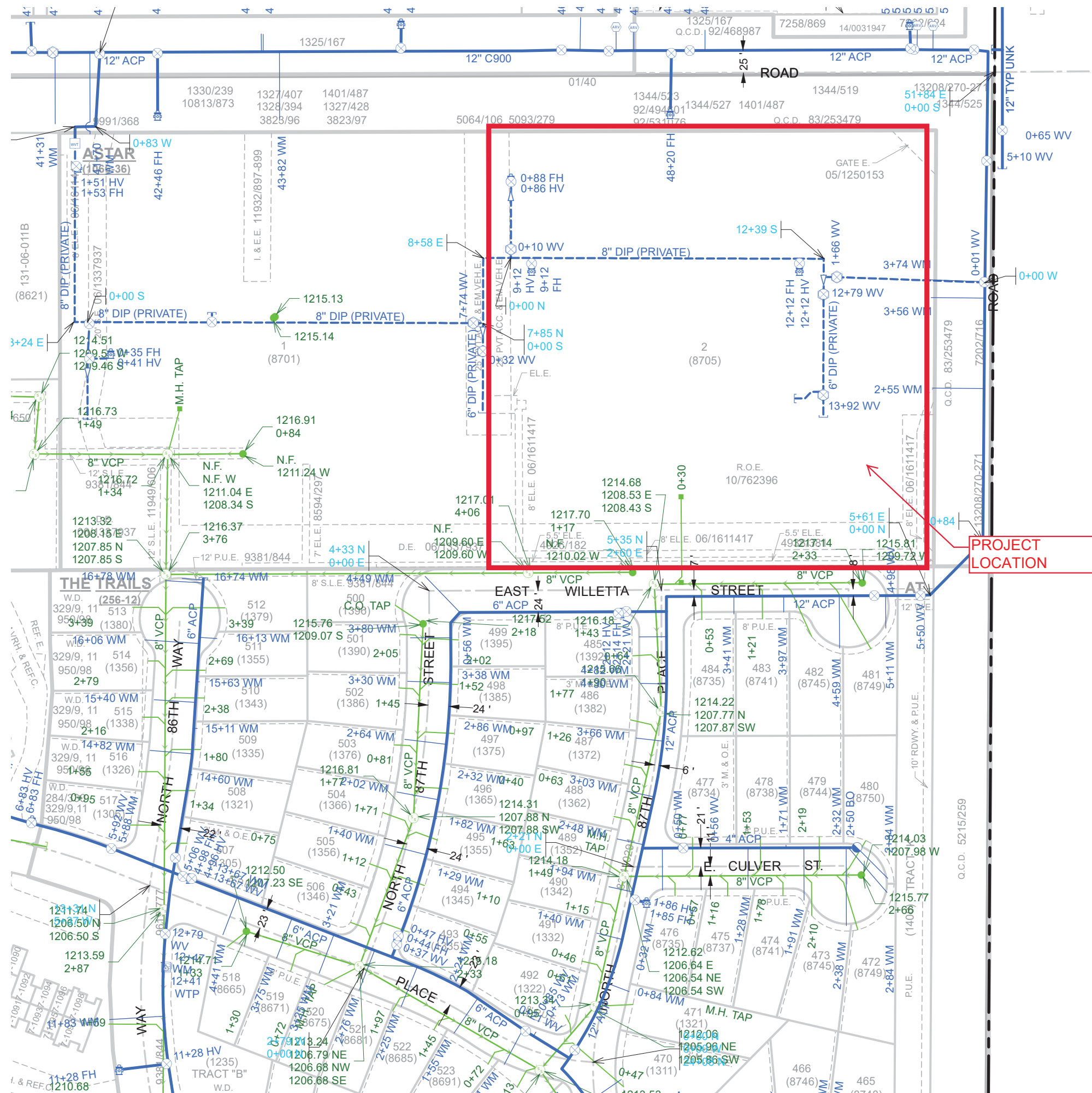
**Peak Demand (Commercial/Retail):**  $3 \times 19,500 = 58,500 \text{ GPD}$

The proposed demand will increase from the existing condition. A sewer flow calculation demonstrates that the capacity in the sewer service connection is an order of magnitude larger than the projected flows. See Appendix C for Sewer Flow Calculation.

## **CONCLUSION**

CYPRESS respectfully submits this report as the Wastewater Design Report for the proposed the Pima McDowell Showroom Development. The proposed wastewater system shall be designed in accordance with ADEQ, International Building Code, and the City of Scottsdale standards.

Appendix A  
City of Scottsdale Sewer Quarter Section Map

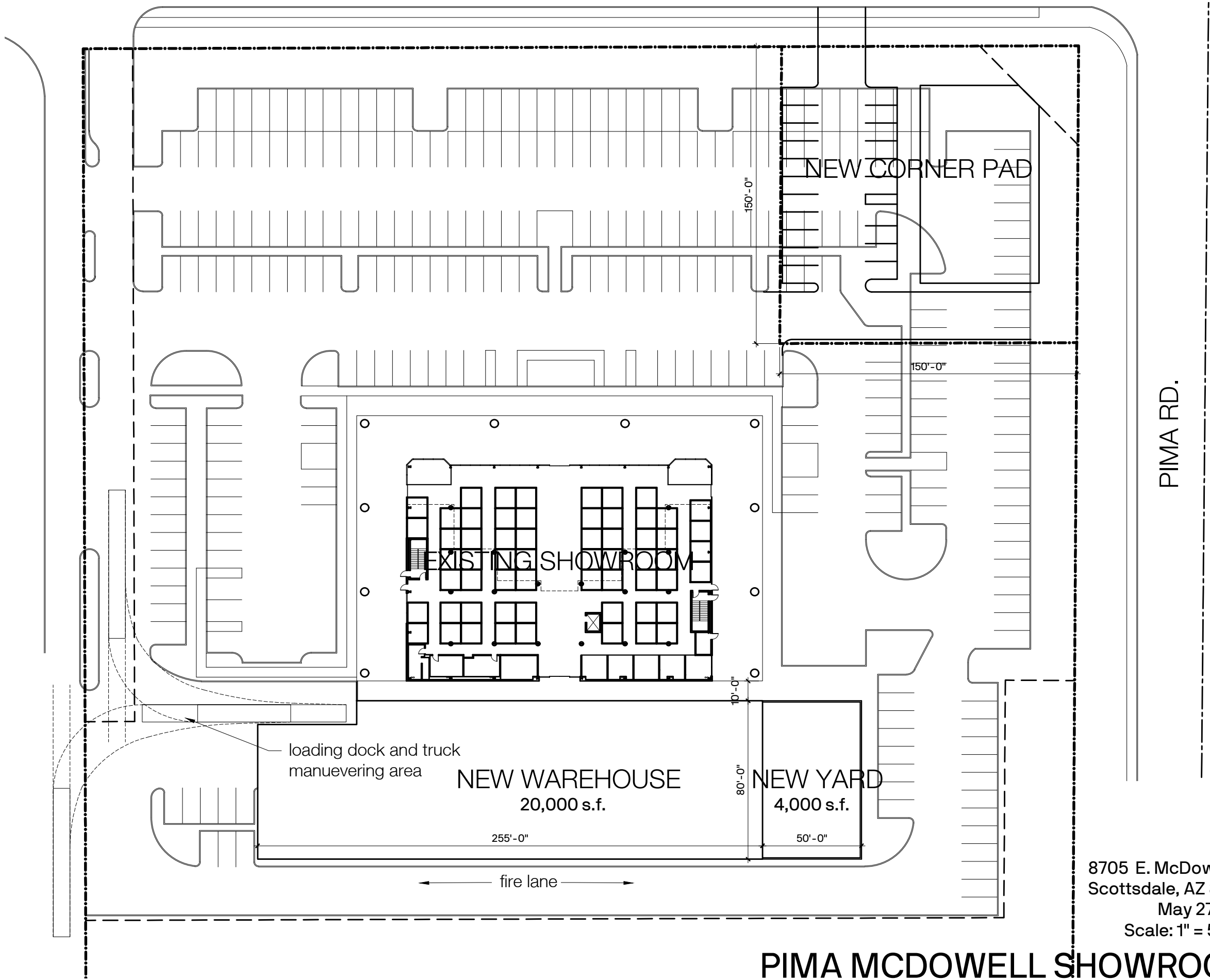


- GENERAL NOTES:**
- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7792.
  - THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER, 1991. BEARINGS ARE NAD 83 GRID AND DISTANCES ARE FLATTENED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS 'CALCULATED' ON THE MAP.

**LEGEND:**

- |                                     |  |
|-------------------------------------|--|
| Water Valve                         |  |
| Non-potable Water Valve             |  |
| Fire Hydrant                        |  |
| Water Blowoff                       |  |
| Water Main Reducer                  |  |
| Water Sample Station                |  |
| Water Air Release Valve             |  |
| Non-potable Water Air Release Valve |  |
| Water Pressure Reducing Valve       |  |
| Water Vault                         |  |
| Water Manhole                       |  |
| Non-Potable Water Manhole           |  |
| Water Pump                          |  |
| Water Main                          |  |
| Non-Potable Water Main              |  |
| Fire Line                           |  |
| Water Service                       |  |
| Non-Scottsdale Water Main           |  |
| Sewer Manhole                       |  |
| Sewer Cleanout                      |  |
| Sewer Lift Station                  |  |
| Sewer Treatment Plant               |  |
| Sewer Main - Gravity                |  |
| Sewer Main - Force                  |  |
| Non-Scottsdale Sewer Main           |  |
| Sewer Service                       |  |

Appendix B  
Preliminary Site Plan



7340 EAST MAIN STREET #210  
SCOTTSDALE, ARIZONA 85251  
MADEWITHALINE.COM

**ALINE**  
ARCHITECTURE CONCEPTS



## Appendix C

### Sewer Flow Calculation

### Sewer Design Report Calculations

Pima McDowell Showroom

Sewage Flow Per Day (From DSPM 7-1.403)

Total Flow (GPD)	19,500
Dry Peaking Factor	3.000
Dry Peak Flow (GPD)	48,750

$$Q = \frac{1.49}{n} AR^{2/3} S^{1/2}$$

Where:

Q = flow in cfs

n = Manning's Roughness Coefficient

A = Cross sectional area of flow

#### SYSTEM MINIMUM SLOPE

$n =$	0.013
Pipe diameter (in) =	6
Pipe Slope (ft/ft) =	0.01

#### SYSTEM MAXIMUM SLOPE

$n =$	0.013
Pipe diameter (in) =	6
Pipe Slope (ft/ft) =	0.02

#### Full Flow\*

Depth of flow (in) =	4.50
$\phi$ (radian) =	4.19
Area (in <sup>2</sup> ) =	22.75
Wetted Perimeter (in) =	12.57
Hydraulic Radius (in) =	1.81
Velocity (ft/sec) =	3.25
d/D ratio =	0.75
Pipe Capacity (GPD)	331,562

#### Full Flow\*

Depth of flow (in) =	4.50
$\phi$ (radian) =	4.19
Area (in <sup>2</sup> ) =	22.75
Wetted Perimeter (in) =	12.57
Hydraulic Radius (in) =	1.81
Velocity (ft/sec) =	4.59
d/D ratio =	0.75
Pipe Capacity (GPD)	468,899

#### Design Flow

Depth of flow (in) =	3.79
$\phi$ (radian) =	3.68
Area (in <sup>2</sup> ) =	18.84
Wetted Perimeter (in) =	11.03
Hydraulic Radius (in) =	1.71
Velocity (ft/sec) =	3.12
d/D ratio =	0.63

#### Design Flow

Depth of flow (in) =	2.60
$\phi$ (radian) =	2.87
Area (in <sup>2</sup> ) =	11.74
Wetted Perimeter (in) =	8.62
Hydraulic Radius (in) =	1.36
Velocity (ft/sec) =	3.80
d/D ratio =	0.43

\*Full Flow refers to d/D of 0.75 per AAC R18-9-E301.4.01.D.2.e